Tecnai driver license User _____

I. Basic license

1. Safety

- ☐ Understand emergency shut down procedure
- ☐ Demonstrate handling the Column valve
- ☐ Point out where emergency contact numbers are posted
- ☐ Know how NCEM staff for support can be contact
- ☐ Wear face shield and gloves when handling with LN

2. Prepare the instrument for your session

- ☐ Show how to check basic vacuum functionality and target pressure values
- ☐ Demonstrate the proper settings of FEG, gun lens, and monochromator
- ☐ Show which software needs to run to control which functionality

3. Remove the specimen holder

- ☐ Demonstrate holder removing procedure, including checking column valve status, stage reset and stage status confirmation

4. Mount a specimen on the holder

- ☐ Know type of holder
- ☐ Wear gloves and use proper mounting tools
- ☐ Demonstrate specimen mounting procedure
- ☐ Know how to use plasma cleaner

5. Load the specimen holder

- ☐ Demonstrate stage loading procedure, including stage selection and cable connection
- ☐ Understand the light of stage vacuum indicator
- ☐ Understand the hazard of premature rotation of the holder.

6. Pre-setup

- ☐ Explain strategies to find the beam if not present
- ☐ Demonstrate specimen manipulation by using the stage functionality
- ☐ Demonstrate procedure to find eucentric height

- ☐ Demonstrate basic column alignment procedures
- ☐ Demonstrate handling apertures

7. Daily (basic) TEM operation

- ☐ Demonstrate how to set and align the TEM illumination
- ☐ Demonstrate how to use GIF CCD camera
- ☐ Demonstrate how to apply GIF tuning

8. Daily (basic) STEM operation

- ☐ Demonstrate how to set and align the STEM illumination
- ☐ Demonstrate how to use software for STEM image acquisition

9. Shut down

- ☐ Set TEM mode if different
- ☐ Set magnification at x10K
- ☐ Close column valve
- ☐ Set Cryo Cycle, check HT and FEG after 5 min.
- ☐ Complete log book

Instructor _____ **Date** _____

II. Advanced level

10. Monochromator setting

- ☐ Demonstrate how to set up, align and optimize the monochromator
- ☐ Show procedure to form a monochromator illumination for TEM
- ☐ Demonstrate procedure to form a monochromated STEM probe

11. Daily HREELS operation

- ☐ Demonstrate procedure to obtain higher energy resolution by manually minimizing spectrometer aberrations and 60 Hz interferences using the streak-imaging technique

Instructor _____ **Date** _____